fatal cases observed both in France and England are numerous enough to show the perils of this treatment, and to warn its boldest partisans. In addition to the mortality, the other dangers are of the most alarming kind; pains, sometimes agonizing, hemorrhages, anemia and nervous disorders, rigors, fever, syncope, peritonitis, pelvic abscesses, metro-peritonitis, &c., not to mention the cases where the treatment could not be endured. The uterine sound, of great advantage in the diagnosis of certain affections, is very often of no service, and, from the great risks attending its use, should be reserved for the exceptional cases which require it; and finally, that the different intra-uterine pessaries ought to be proscribed, because they are useless, and impotent to produce the good effects expected from them, and they subject the patients to the most serious dangers.—*Monthly Journ. Med. Sci.* Aug. 1854, from *Bulletin de l'Académie*, 31st May, 1854.

[We shall endeavour to find room for an analysis of the discussion to which this report gave rise in our next number.]

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

62. *Early Live Birth, with Case.*—Dr. Keiller exhibited to the Edinburgh Obstetrical Society, a premature fœtus which was born *alive* in the fourth month, and made some remarks on the *medico-legal* relations and importance of such a case. The following are the particulars of the case, as noted at the time of its occurrence:—

On the 17th June, Dr. Keiller was called to Mrs. R., who was about to abort. She had miscarried about a year previously (20th July), when seven months pregnant, and now considered herself only in the fourth month, having last menstruated on the 8th February, and quickened about a week ago (8th June). The pains were evidently expulsive, and, on examination, the distended membranes were felt protruding into the vagina. Dr. K. shortly afterwards ruptured them, when the liquor amnii was forcibly and fully expelled, a foot immediately presented itself by which the extraction of the fœtus was speedily accomplished. The heart and vessels of the cord were beating vigorously, which induced Dr. K. to allow the fœtal circulation through the still attached placenta to continue for some time, in order to observe the reflex movements of the limbs, face, and respiratory muscles which thereafter took place. At first these muscular reflex contractions were very marked. On touching the feet and hands, the limbs were immediately drawn up and moved about. On blowing on the face, the lower part of it was tremulously moved, and the mouth at each time opened; and three or four times an attempt to respire or gasp, accompanied by an apparently respiratory movement of the chest or thoracic convulsion, took place. The pulsations of the carotic arteries were also at first very distinctly observed. The umbilical pulsations gradually diminished in force and frequency, and when reduced to about ninety beats in the minute, Dr. K. cut the cord, and allowed about a drachm of blood to ooze from its fœtal extremity, the heart's action immediately became quicker, and one or two thoracic convulsions afterwards followed. The mouth gaped repeatedly on blowing air on the features, the limbs gradually lost their reflex actions, and the heart's action, as seen against the thin walls of the chest, became more and more feeble; subsequently a few seconds elapsed between every observed pulsation, but more or less distinct movements occurred for nearly an hour from the time the fœtus was first expelled. On being weighed, the fœtus was found to be exactly 9½ oz., in length it measured 8 inches; the placenta, with attached cord, weighed about 6 oz. The eyelids were adherent, the nose and ears closed, the mouth, however, being open; the membrana pupillaris was entire; on opening the chest, the situation and appearance of the lungs and other organs were characteristic of its apparent age. The lungs, in colour and volume, resembled those of an early fœtus; and, with the exception of one or two ecchymosed spots, no colour or other evidence of developed air-cells was noticed, all the appearances indicating that no air whatever had ever reached the tissue of the lungs. The brain was afterwards minutely examined, and also found to be characteristic of the apparent age, as were also the other fœtal organs.

Dr. Keiller referred to the importance of such cases of early live birth, in regard to civil jurisprudence, but more especially to the questions, *Possessio Fratris, Tenancy by Courtesy, etc.*, to which the case he had now reported was in several respects related. It was frequently a matter of considerable importance to determine even the momentary existence of children at birth, and therefore the subject of *live birth*, and the evidence by which its occurrence is held to be substantiated, occasionally become of extreme consequence in a legal point of view, more especially in cases of contested lawsuits relative to the inheritance of, or the succession to property. Dr. Keiller directed the attention of the Society to the decisions that had, from time to time, been given respecting *what constituted live birth*, and referred to the more recent cases, in civil jurisprudence, in which the question of live birth was held to be established without any evidence of what was formerly demanded, *respiration or crying*. The mere muscular movements of the limbs, or the features, independent of any signs of respiration (as alone happened in the preceding case), having been ruled as sufficient evidence of a child being born alive, is therefore now held to be ample enough *proof* of what is termed in such investigations "live birth."—*Monthly Journ. of Med. Sci.* Sept. 1854.

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63. *What are the best Means of Resuscitation from an Overdose of Chloroform?* By John Lizars, Esq., late Professor of Surgery to the Royal College of Surgeons, and Senior Operating Surgeon to the Royal Infirmary, Edinburgh.—Death from the employment of chloroform as an anæsthetic, is a consequence which has long admitted neither of doubt nor denial. Hospital reports and coroners' inquests have, indeed, furnished such frequent occurrences of that kind as to have rendered the subject one of painful and public animadversion. But although fatal effects from the anæsthetic are more to be apprehended, and will, I believe, be found more frequently to occur in individuals subjected to its influence, in whom structural lesions in the heart, bloodvessels, or lungs, exist, nevertheless, *post-mortem* examinations have shown that chloroform has proved suddenly fatal, where no trace of disease could be detected in the cerebral or circulating systems. It appears, indeed, to be very satisfactorily established that chloroform ought not to be indiscriminately used; that there are morbid conditions of the body in which it is inadmissible; and that in every case in which it is resorted to the greatest care is required in its administration, and the most vigilant attention in watching its effects.

One great cause of danger cannot be too strongly enforced, and is the more deserving of notice, that it can be easily avoided, viz: *never to induce too suddenly unconsciousness.* It is absolutely necessary for its safe inhalation that the anæsthetic vapour be mixed with a large quantity of atmospheric air. The cessation of the pulse, after a few gasping inspirations, is the first symptom indicating immediate danger. This effect upon the circulating medium is simply the paralysis of the action of the heart, produced by the rapid inhalation of the chloroform vapour in a concentrated form, and undiluted with common air. The employment, therefore, of all kinds of apparatus or bottles, by which the pure anæsthetic fumes are only inhaled, ought to be abandoned.[1] The simplest and safest mode of administering chloroform is by the application to the nostrils and mouth of a pocket-handkerchief or small napkin, into the folds of which two or three drachms of the anæsthetic have been poured. These can be speedily removed when the symptoms of insensibility threaten, or supervene too suddenly or severely. But such symptoms will be prevented by a proper adjustment of the handkerchief, and the safe and full effects of the narcotic agent will be produced by its gradual diminution or increase, according to circumstances. Dr. Snow's plan of mixing equal parts of spirits of wine with chloroform will prevent the danger arising from chloroform too concentrated, and seems well adapted to sensitive and irritable persons.

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[1] I must exempt from this objection the very ingenious instrument invented by the late Mr. Ramsay, of Barnton, constructed so as to admit of the admixture of an equal proportion of atmospheric air with the chloroform vapour when inhaled. It was frequently and most successfully used in all operations required to be performed on the horse. For an account and drawing of this instrument, see *Scottish Agricultural Journal* for 17th July, 1849.

While rapid anæsthesia from pure chloroform vapour should be avoided as being highly dangerous, the opposite extreme must not be fallen into, of keeping the patient too long under its influence. In hospital practice, I have been informed of very distressing instances of this kind. An unnecessary greater quantity of chloroform must be given, and the patient kept unsafely longer under it, if administered before the patient is brought into the operating theatre. Consequent sickness and vomiting, as remarked by Professor Miller, are more likely to ensue under such circumstances. The time and place of inducing anæsthesia should be unquestionably the operating table, and the exceptional administration of chloroform in bed ought to be limited to those patients who are timid and apprehensive.

I am decidedly of opinion that chloroform should be exclusively intrusted in its administration to individuals having great practical experience in its inhalation; and I have nothing to add to the following observations contained in my communication on this important subject, which appeared in the *Medical Gazette* for 8th June, 1849: "An experienced assistant is required to administer the chloroform, and to do nothing else. He must watch its effects, allowing fresh atmospheric air to enter the nostrils and mouth occasionally during its administration and influence, otherwise the blood may become too greatly carbonized, and death ensue." Previous to the administration of chloroform, the state of the stomach should be carefully attended to. It should not be allowed to be overloaded, and, indeed, the patient, for several hours before being operated on, should have little or no food.

I have stated that the primary effect which is produced on the circulation by a sudden overdose of chloroform, is paralyzing the action of the heart. In consequence of the blood becoming abnormally carbonized, the heart, lungs, and brain are deprived of the natural stimulus of that fluid, and life is thus rapidly extinguished. After death, little or no blood is found in the left auricle or ventricle; what of it is contained there is in a fluid state, and not liable to coagulate, when exposed to the atmospheric air. It has been observed to be of a purple-brown colour, like that found in the spleen, and not of the ordinary dark blood colour of venous blood.

Many and various are the remedial means recommended for resuscitating from an overdose of chloroform, from the simple application of errhines to the more than questionable operation of tracheotomy. Dr. Snow considers that "artificial respiration is the best means." We presume that the process is to be effected by means of the bellows. Dr. Herapath, of Bristol, has published a paper, recommending galvanism as affording "the only chance" of recovery. He says, "keep up a current of electricity through the fifth nerve, medulla oblongata, phrenic nerves, and diaphragm, as long as respiratory movements can be produced; and let the patient have plenty of fresh air or oxygen gas, and the case must do well, for the blood will remain fluid for a long time, and the circulation will go on, as long as respiration continues to be carried on artificially. The blood and the air-cells throw off their load, and in proportion as the pneumo-gastric, medulla oblongata, and motor nerves resume their functions, so respiration begins to assume a less artificial character; at length the cerebrum aids us, and respiratory movements, both voluntary and involuntary, keep up the functions of life unaided."

Professor Rigaud advocates a method, by which he says life has been on various occasions saved, and is detailed in the following case, extracted from the *Abeille Médicale*, of 3d Nov. 1851: "Professor Rigaud was on the point of removing a tumour from the chest of a female patient. After a few inspirations of chloroform, the pulse stopped suddenly, and the woman did not give and signs of life. The chloroform was at once removed, and water dashed on the face, and frictions made all over the body. These means, in a couple of minutes, produced a few weak pulsations of the heart, which, however, ceased almost immediately, and were not accompanied by any respiratory act. Professor Rigaud now thought of using the method which had been advocated by Dr. Escalier, and passed his index finger along the dorsum of the patient's tongue, and raised the epiglottis, and drew the former out of the mouth. This had the effect of producing an inspiration, which circumstance was taken advantage of to make the patient inhale ammonia. As soon, however, as the tongue was lost hold of, it glided back again into the mouth, and respiration ceased again. The same manœuvre was now repeated; but this time Professor Rigaud kept the patient's tongue out of the mouth; the respiration then set in again, and the woman quickly recovered. The operation was then performed without chloroform, and Professor Rigaud considers Escalier's method saved the patient." The history of the case would justify the conclusion, whatever good effects were produced by the means employed, that the anæsthetic, as the operation was aftewards performed without chloroform, must have been considered unsafe to the patient.[1]

Professor Miller, of this University, considers the suspended respiration in such cases to depend upon "spasm of the glottis," and he recommends opening the external jugular vein, if there be no bleeding wound, along with "hooking up the epiglottis." He says: "With every care, there is a chance of asphyxia threatening from another cause, during the passage into deep stupor, or during emergence from it; I mean (says he) spasm of the glottis. The remedy, however, is simple. Force the finger into the throat, and hook up the epiglottis with its point; have artificial respiration maintained by thoracic pressure, and if there be no bleeding wound, open the jugular."[2] Professor Miller must be deceived in pronouncing this state of the glottis, or rather epiglottis, as spasm; it must be paralysis of the epiglottis, from the overdose of the anæsthetic.

The opening of the external jugular vein appears only to be applicable to cases of decided asphyxia, and even in such will scarcely ever be required, as, nine cases out of ten, there is a bleeding wound. A simple respiratory obstruction, as that occasioned by palsy of the epiglottis, or spasm of the glottis, may be produced by an erect and elongated state of the uvula peculiar to some persons. Most practitioners must be familiar with instances of suddenly-threatened suffocation from such a cause. The application, in mild cases, of a stimulus or escharotic is sufficient to contract the organ; but obstinate elongations of the uvula occasionally occur, which require to be removed by the scissors. A gentleman lately consulted me, who held the uvula between his teeth, and would not open his mouth until he wrote down an account of his sufferings. Perceiving at once the nature of his complaint, I seized the elongated uvula with a pair of toothed forceps, and clipped it off close to the velum.

In addition to these means, all of which can be without loss of time and almost simultaneously employed—for, without promptitude in their application, the patient will be irrecoverably lost—I would suggest the following processes for stimulating to renewed action the paralyzed organ of the circulation.

When we see fatal results occurring without any previous form of disease, and the heart with vain efforts struggling to resume its powers, no means should be left unattempted to assist and revive its prostrated vital action. And from the beneficial results which, I have been informed, have been produced by the introduction of diffusible stimulants into the stomach, by the stomach-pump, and by venous injection in analogous conditions of the body, viz: in cholera asphyxia, which in many particulars resembles the poisonous collapse caused by chloroform, I have been induced to request a place in your Journal for this communication, in order that the proposals may be brought, through its widely circulated columns, under the notice of the profession. The first proposal I have to offer was suggested to me by a friend who had considerable experience in the treatment of cholera. He informs me that his usual practice with patients of sober habits, affected with malignant cholera, who in a few hours were reduced from good health to a state of collapse, with the blue face, cold extremities, and without pulse, to pump into the stomach a large quantity of hot water mixed with spirits, and to administer large enemata of hot water and turpentine. The influence of the stimulants is rapidly diffused through the system, and he has had the satisfaction of restoring circulation and heat of the body on many occasions when the powers of life were all but exhausted. He thinks the same benefit might attend the employment of the practice in the hopeless condition to which a person is reduced by an overdose of chloroform; and he justly adds, it can be safely and speedily resorted to, as the stomach can at once and without danger be reached after the powers of deglutition are gone, and when the introduction of fluids into the fauces is, not to say hazardous in the extreme, but impracticable. In illustration of the practical bearing of my friend's remarks, I may refer to Mr. Lloyd's case of aneurism under operation in St. Bartholomew's Hospital, March 17, 1852, in which chloroform proved rapidly fatal. The warm bath and artificial respiration were used with "no avail." The resuscitating measures had been continued for more than an hour, ammonia had been applied to the nostrils, but no attempt was made to introduce stimuli into the stomach, as Mr. Lloyd feared any liquid placed in the mouth might pass into the larynx, and occasion instant suffocation. I may here ask: How is the stomach of the drunkard cleansed, when his life is in jeopardy?

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[1] Dr. Storer, of Boston, U. S., informs me that the use of chloroform, from its pernicious effects, has been long abandoned in that city, and that when an anæsthetic is required, sulphuric ether has been substituted.

[2] See "Miller's Principles of Surgery," p. 765, 1850.

The influence of a stimulus in the stomach is almost immediately imparted to the cerebrum. It is well known that individuals employed in bottling spirits, from the inhalation of the spirituous evaporation, suddenly fall down in a state of insensibility, an effect which seldom, if ever, happens, if a glass of the stimulant be taken previously to commencing the operation. When all other means fail, I would try, as a last resource, injecting the veins with a saline solution, a practice so successfully employed, in 1832, by the late Dr. Latta, of Leith, Dr. Sibson, now of London, and Dr. Robertson, of the First Royals. Delpech justly observed, that the blood in cholera "ceases to be arterialized;" and the state of the blood of a patient labouring under this disease is nearly similar to that in an individual rendered insensible by chloroform, the symptoms in both cases being a deathlike countenance, imperceptible breathing, and a pulseless circulation. In such a state, "*melius anceps quam nullum remedium.*" In my treatise on cholera asphyxia, at page 73, I have stated: "When the patient is unable to drink, decomposition of the blood has either commenced, or is on the verge of undergoing that process, and, in such a desperate state, nothing can save the patient but injecting the veins with a saline solution. It should be done as follows: Let a solution be properly prepared, consisting of 10 lbs. of hot water, at the temperature of 110°, in which is dissolved a drachm and a half of bicarbonate of soda, and half an ounce of the muriate of soda. This solution is to be strained through chamois leather. One of the veins at the bend of the arm is then to be opened, as in phlebotomy, into which is inserted a common injecting-pipe of the dissecting-room, and then the elbow-joint put in a basin of warm water, to exclude the atmospheric air. The common enema apparatus was employed, the tube extremity of which was adapted to the small dissecting-room pipe, and now held under the water in the basin. The syringe was now plunged into the saline solution, and two or three syringefuls pumped out at the extremity of the tube, still held under the warm water. The tube was carefully inserted in the nozzle of the injecting-pipe, and the pumping begun and performed slowly. During the injecting this solution, the dissecting-room pipe should be held by one assistant while another slowly works the syringe, holding it perpendicularly and steadily, watching the extremity of the tube inserted in the injecting-pipe. After a few ounces were injected, the pulse became perceptible; the breathing stronger; the skin warm; the countenance natural; the eye lost its ghastly, sunken appearance; the face became full and plump, and even rosy; old age assumed the expression of youth. The cramps, the restlessness, and the thirst disappeared."[1]

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[1] See the Investigations regarding Cholera Asphyxia in 1832. By Delpech and Lizars. Second edition.

It is almost unnecessary for me to advise (for the advantage of having the necessary remedial reagents ready, when dangerous symptoms demand their immediate application is so apparent), that the saline solution, and the instruments necessary to be used in the two modes of treating patients which I suggest, labouring under an overdose of chloroform, should be prepared, and always kept at hand in every hospital, whenever an important surgical operation is to be undertaken, and the patient put and kept in an unconscious state, under anæsthetic influence, during its performance.

Although I have not had an opportunity of proving the utility of venous infusion under the circumstances for which I have recommended it, yet I consider it my duty to direct attention to it, the more especially that death from chloroform appears to be on the increase; and it will form a necessary subject of grave deliberation, if the lamentable occurrence of so many fatal cases among persons otherwise in good health cannot be prevented, by the greatest caution having been taken in its administration, and after every possible means have been speedily, actively, and perseveringly employed, to effect resuscitation, whether the use of chloroform as an anæsthetic should not be greatly curtailed.

For a considerable time past I have declined to urge upon parties, before being operated upon, the advantage of taking chloroform, and have lately performed several capital operations, such as lithotomy, without it. Indeed, the operative rule which I have lately adopted in all cases, except when structural dieases in the heart or other vital organs, or in the lips, nostrils, and fauces, render its application unsafe, is to leave the matter entirely in the choice of the patient, who is best able to decide, whether he is willing to submit to the unavoidable pain of the operation, or to be reduced to a state of unconsciousness during its performance.—*Med. Times and Gaz.* Sept. 9, 1854.

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64. *Apparent Death.*—On the 24th of December, 1830, M. Ancelon was sent for in great haste to visit a person about eight miles off. On arriving he was informed that the patient, a woman 34 years of age, had been dead for more than half an hour. On examination, no signs of respiration could be detected; the pulse could not be felt, the surface was livid, the belly soft and placid, and the extremities cold. On being informed that the woman had been suffering from uterine hemorrhage for a length of time, and that it had continued up to the moment of her death, M. Ancelon made a vaginal examination. He found in the neck of the uterus the head of a fœtus of four months old; the soft parts were entirely absent. At the moment that he touched the head of the fœtus the midwife thought she perceived a bubble of air at the woman's mouth. Encouraged by this appearance, M. Ancelon proceeded to disembarrass the uterus of its putrefied contents, and in proportion as he advanced in this the woman appeared to be restored to life. The respiration, manifested at first by air-bubbles, which succeeded one another on the lips, and then the circulation became established with extreme slowness. She did not recover her intelligence for more than three days. During this time, frequent injections were employed to clean out the putrid matters from the uterus, and ammonia was administered internally. During convalescence, she suffered much from an immense number of abscesses over the whole body. Eighteen months afterwards, she was delivered of her tenth child.—*Monthly Journ. Med. Sci.* Oct. 1854, from *Bulletin Gén. de Thérap.* Nov. 15.

[This case shows the importance of an accurate acquaintance with the signs of death. Of these the only one on which confidence can be placed, in very recent cases, is cessation of the beatings of the heart as determined by the stethoscope. The other unequivocal signs, such as cadaveric rigidity, putrefaction, &c., do not occur for a longer or shorter time.]